COLLEGE ADMISSION REQUIREMENTS IN MATHEMATICS[1]

IT will be seen from these tables that the diversity in the requirements for admission in mathematics to the sixty colleges and universities here represented is considerable. Within the three subjects most prominent in the tables the diversity is greatest in Geometry and least in Arithmetic. In Elementary Algebra, owing to the difference in the arrangement of the subject-matter in different text-books, the requirements are probably not as uniform as they seem to be, and there are some obvious differences.

REQUIREMENTS FOR ADMISSION TO THE A.B. COURSE.

Arithmetic. — Of the sixty colleges represented in the tables, twenty-eight have at present an admission requirement in Arithmetic, and this requirement is so nearly uniform that it may be said that these twenty-eight colleges make substantially the same requirement in that subject.

Algebra. — Nearly all the colleges require a knowledge of Algebra through Quadratics. Some specify Indeterminate Equations, and Logarithms, and some also add the Binomial Theorem, the Progressions, Indeterminate Coefficients, Permutations and Combinations. These additional requirements are, however, not made specifically by any considerable number of the colleges and universities represented in the table. Many of the colleges indicate a certain portion of a given text-book. In such cases, it is, of course, possible to determine exactly what the requirements really cover. Making a comparison of all these requirements, it appears that the phrase *Elementary Algebra through Quadratics*

[1] This paper is properly a part of the Preliminary Report of the Committee on College Entrance Requirements which appeared in the June SCHOOL REVIEW. The tables referred to will be found there.

practically covers the admission requirements in Elementary Algebra for nearly all the colleges whatever the text-book used may be; for, although the arrangement and scope of the subject in different texts are not uniform, yet the deficiencies, in most cases, would be slight.

Geometry. — The greatest diversity in the admission requirements in any one subject in Mathematics appears in the requirement in Geometry. Of the sixty colleges represented in the table, thirty-nine require Plané Geometry alone; nineteen require Plane and Solid Geometry, and two institutions (the University of North Carolina and the University of Tennessee) require no Geometry whatever. Of the institutions that require Solid Geometry, two require "to the sphere" only (University of Rochester and Beloit College). Three colleges, viz., Lehigh University, Rutgers College and Washington and Jefferson College, do not require all of Plane Geometry. One of the colleges (University of Iowa) accepts Plane Trigonometry in place of Solid Geometry. Some of the colleges indicate special texts without qualification. Most of the colleges, however, merely indicate the scope of requirement without specifying a particular text.

Trigonometry. — Three colleges require Trigonometry in addition to the other requirements in Mathematics if the candidate offers no Greek. One college requires Trigonometry or Solid Geometry as well as Greek and the other requirements in Mathematics also (Johns Hopkins). These four institutions require Plane Trigonometry only. One college requires Plane and Spherical Trigonometry as well as Greek, together with the other requirements in Mathematics.

Analytical Geometry. — One of the Universities named (Johns Hopkins) requires either Analytical Geometry or Elementary Mechanics. But as pupils seldom go from secondary schools to Johns Hopkins this particular requirement has very little to do with the present discussion.

REQUIREMENTS FOR PH.B. COURSE.

Only two of the institutions named in the table, viz., University of California and Yale University, specify different requirements in Mathematics for this course from the requirements for the A.B. course, the difference in the case of these two institutions being, for the University of California, certain optional requirements in Algebra, Solid Geometry, and Plane Trigonometry with practice in Logarithms ; and for Yale University the additional requirements comprise Series, Theory of Limits, Properties of Logarithms, Compound Interest, Annuities, Solid Geometry, and some work in Trigonometry in addition to the Trigonometry required for the A.B. course.

REQUIREMENTS FOR B.S. COURSE.

Eighteen of the colleges named specify different requirements for the B.S. course from the requirements for the A. B. course. One diminishes the requirements slightly, Higher Arithmetic being omitted. In all the other colleges the requirements in Mathematics for the B.S. course are somewhat higher than for the A.B. course, the additional requirements being usually Trigonometry, or Solid Geometry, or both. In some cases also the requirement in Algebra is increased. Of these eighteen institutions, ten require Solid Geometry alone in addition to the requirement for the A.B. course. One permits an alternative between Solid Geometry or Trigonometry. One specifies only one book of Solid Geometry in addition to the requirements for the A.B. course, and one specifies only two books of Solid Geometry. Six of these institutions require both Solid Geometry and Trigonometry in addition to the requirements for the A.B. course. Two of them require both Plane and Spherical Trigonometry. In other cases, when Trigonometry is required, Plane Trigonometry only is demanded.

It will be seen from the foregoing summary of the facts revealed by the table, that the difference in admission requirements for half a dozen colleges taken at random from the table,

is considerable, and that the burden imposed upon a school fitting for several colleges is, in consequence, also considerable. This great diversity seems wholly unjustifiable. A school preparing for several colleges ought to be able to adjust its programme economically as well as efficiently. When the difference in the requirements made by two institutions is so great that one of them requires Algebra and Plane Geometry; and another one insists on both Plane and Solid Geometry, and perhaps also on Trigonometry as well; and a third institution requires Arithmetic as well as Geometry and Algebra, while the other two do not, it is clear that the secondary school fitting for college is required to adjust itself to demands that impose needless burdens. To state this fact would seem to indicate that the time has come when the colleges should agree on some plan of admission requirements in Mathematics that shall satisfy them all by means of reasonable substitutions and omissions.

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